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Electronic Payments and Money: Recent Developments and Issues

Presentation to the Bank of Mexico conference on
"The Evolving Landscape of Payment Systems"
Mexico City, October 14-15, 2014

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Organization of the presentation

- From Money to E-Payments and E-Money: The Changing Landscape for Retail Payments
- Implications for the central bank
- Potential roles of the central bank
- E-money research at the Bank of Canada

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From Money to E-Payments and E-Money: The Changing Landscape for Retail Payments

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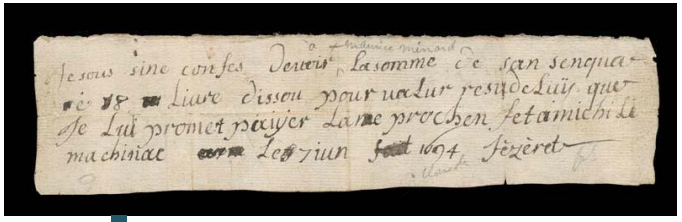
The way people making payments is changing constantly: payment innovations in earlier centuries

Wampum beads

Promissory notes



Province of Canada note

17th Century | 18th Century | 19th Century | 1935

Coins: 15 sols

Playing cards

Bank of Commerce
$5 note

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Cash transactions

Advantages

- Easy to use
- Convenient
- Quick
- Anonymous (private)
- No need for a 3rd party for transactions
- Final

Problems

- Counterfeiting
- Thief, robbery or lost
- Not suitable for remote transaction
- Inconvenient for large value transactions

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E-payments

E-payments:

- Electronic payment methods that allow users to access funds in their deposit or credit accounts in financial institutions to initiate payments; (e.g. debit and credit cards, internet banking)
  - FIs are under prudential regulations
  - Bank deposits are usually covered by deposit insurance
  - Banks settle their obligations in payment and clearing systems that are subject to oversight

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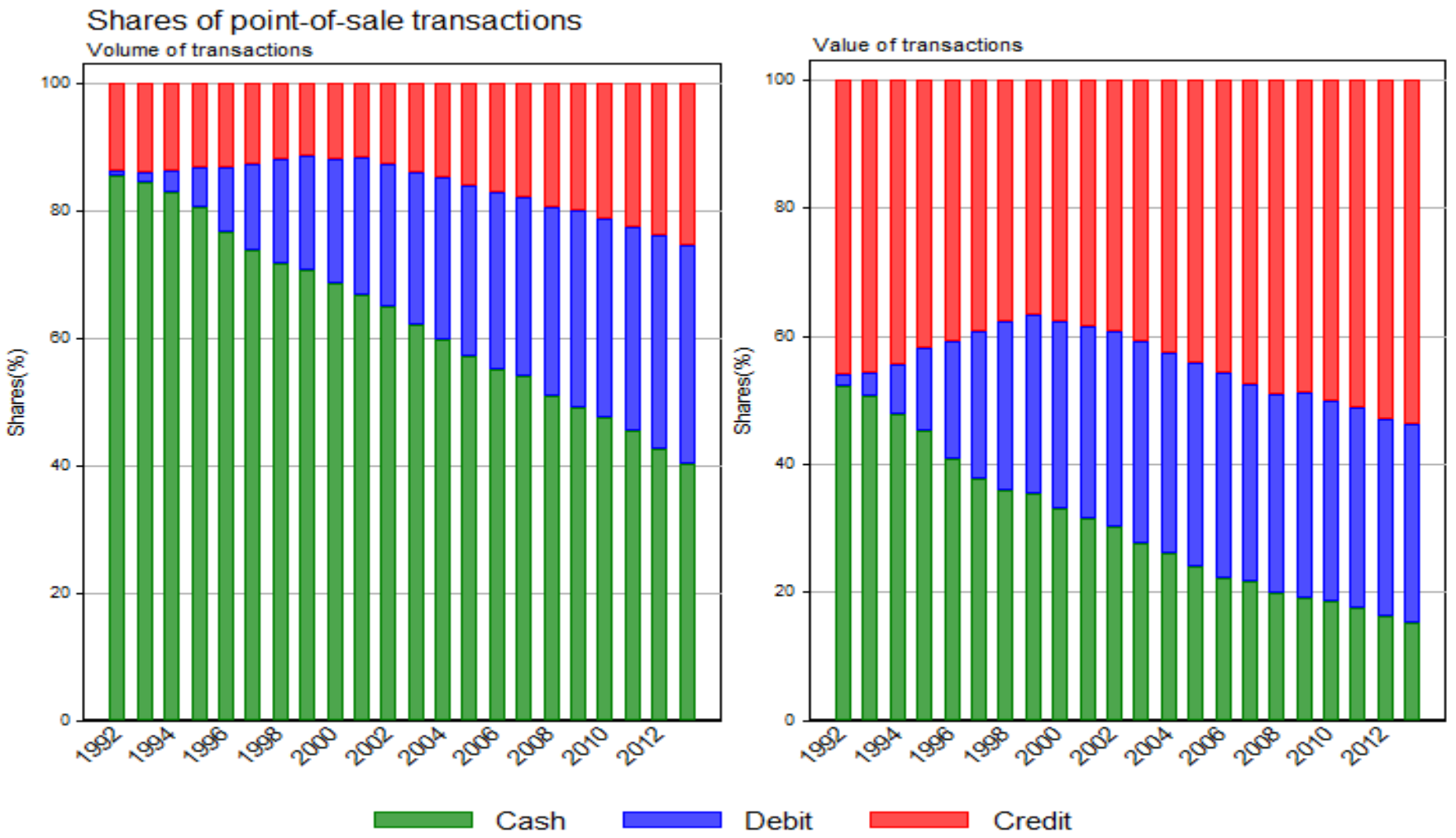
How do Canadians pay?



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But cash is still used a lot in many countries, mainly for small value transactions

	AU	AT	CA	FR	DE	NL	US
Year	2010	2011	2009	2011	2011	2011	2012
Payment share by volume							
Cash	0.65	0.82	0.53	0.56	0.82	0.52	0.46
Debit	0.22	0.14	0.25	0.31	0.13	0.41	0.26
Credit	0.09	0.02	0.19	0.01	0.02	0.01	0.19
Payment share by value							
Cash	0.32	0.65	0.23	0.15	0.53	0.34	0.23
Debit	0.32	0.25	0.30	0.43	0.28	0.60	0.27
Credit	0.18	0.05	0.41	0.03	0.07	0.04	0.28
Average transaction values ($)							
Cash	15.2	24.7	12.9	10.9	25.0	17.4	17.8
Debit	43.3	55.6	37.6	56.6	75.7	39.1	37.3
Credit	60.0	85.9	64.7	92.5	160.5	95.6	56.4

Source: (Bagnall et al., 2014)

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E-money

E-money:

- Monetary value stored on an electronic device such as a chip card or a hard drive in personal computers or servers.
  - Centralized systems that are prepaid, liability of the issuer, and multi-purpose, e.g. Octopus card in Hong Kong, M-PESA in Kenya, PayPal prepaid balances
  - Decentralized systems that use cryptography for authenticating and validating transactions, e.g. cryptocurrencies such as Bitcoin

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E-money (centralized) adoption has been slower than expected in Canada and elsewhere

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Number of cryptocurrencies is exploding but acceptance still low

Select Amount

Insert Cash

Get your bitcoins

- Less than 1000 merchants in Canada accept bitcoins, mostly online
- Worldwide ranges from 5,000 to over 70,000, including major online merchants such as Expedia and Dell

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Implications for the central bank

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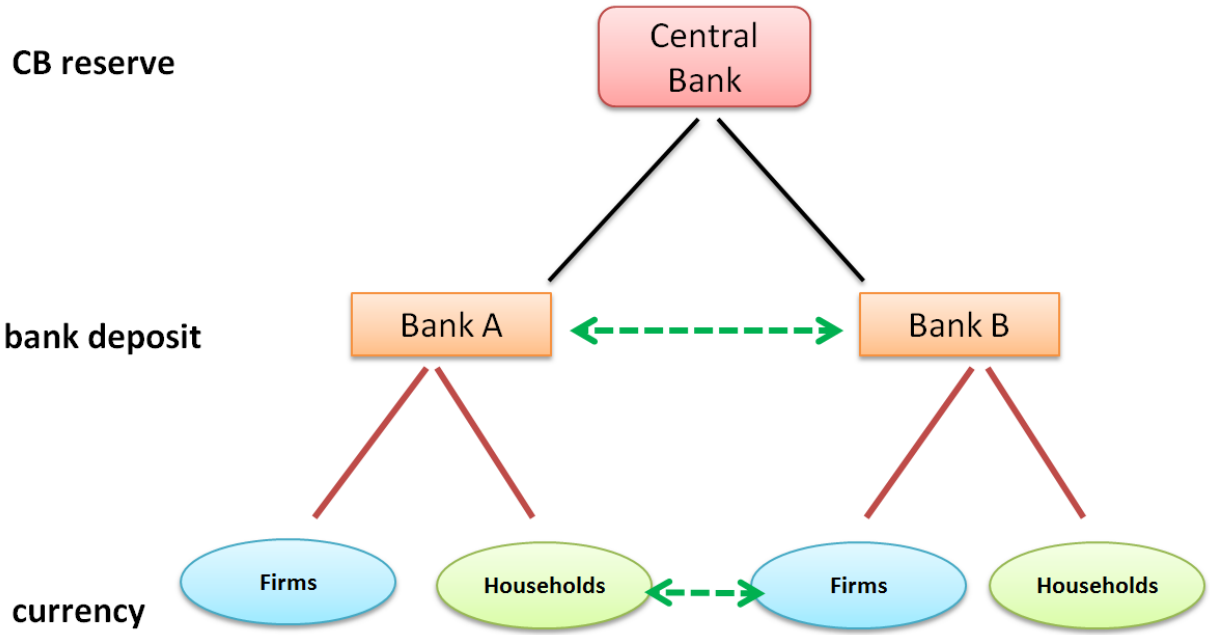
Implications for the central bank

- Cash demand, central bank balance sheet and seigniorage revenue
- Financial system stability
- Monetary policy implementation



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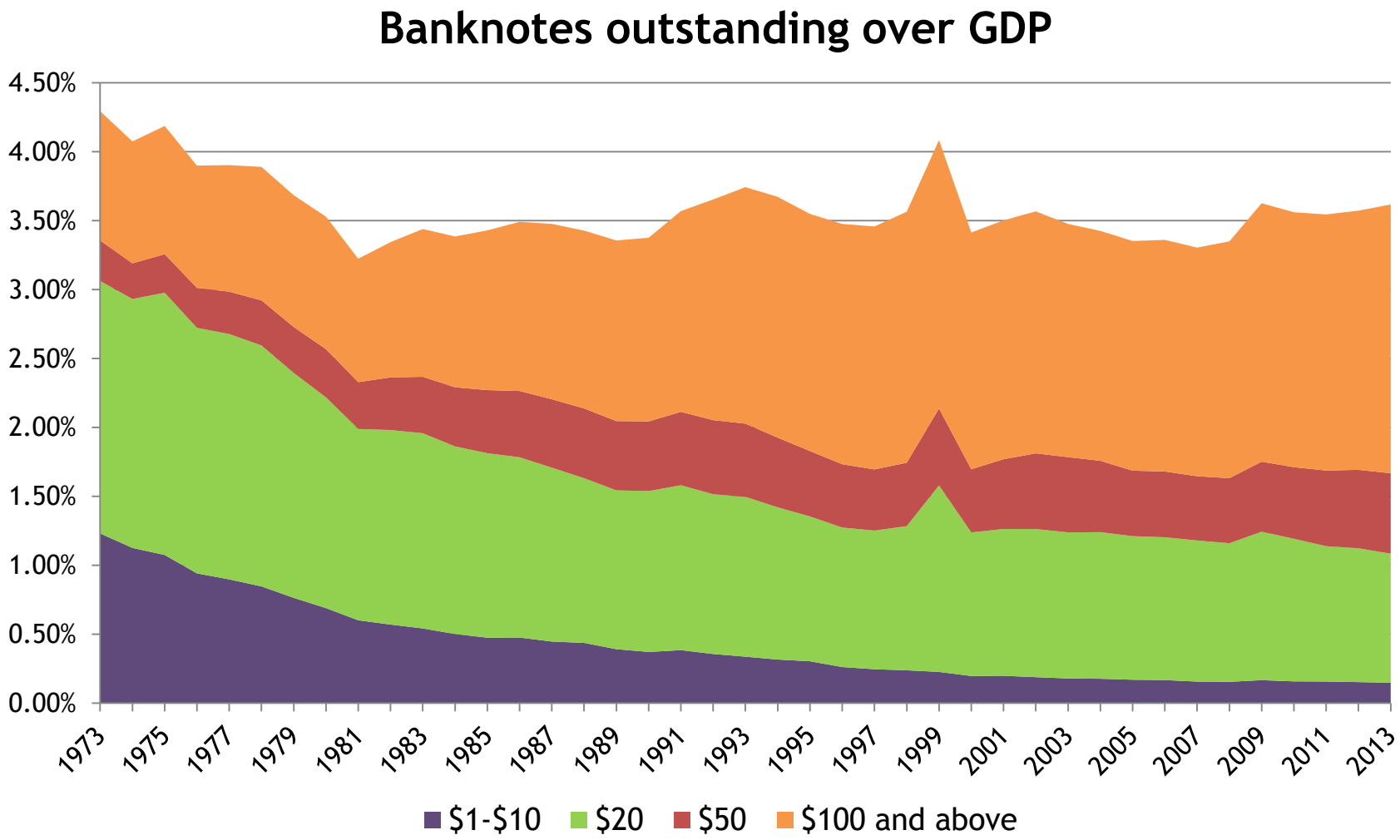
Demand for banknotes remains stable relative to GDP in Canada, although Canadians are using less cash for making payments



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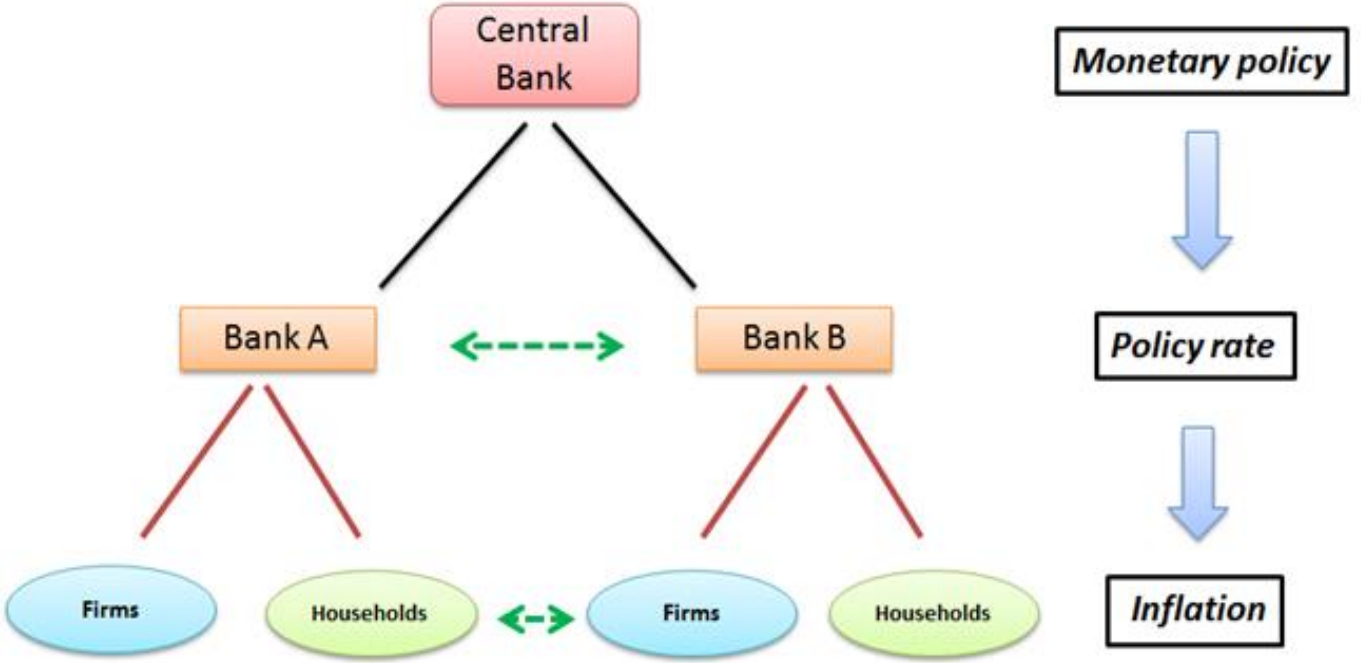
Implications for the financial system

- What is the impact on the central bank's financial stability function to
  - Provide liquidity to the financial system
  - Provide emergency lending assistance to a bank facing liquidity shortage
  - Intervene by buying and selling securities and financial instruments when there is a severe and unusual distress in the financial system
- How can the central bank mitigate such impacts?
- What are the potential effects of the increasing reliance on cryptocurrencies on the banking and financial system?

Implications for monetary policy



- Effect on participation in the settlement system and demand for settlement balances
- Effect on central bank's ability to provide liquidity and control the policy interest rate
- Effect on the implementation framework and the transmission mechanism

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Potential roles of the central bank

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The potential roles of the central bank

- Central bank as catalyst/facilitator
  - Monitoring and research
  - Helping set standards: e.g. interoperability, security, data protection
- Central bank as regulator
  - E-money regulations
  - The case of Bitcoin
- Central bank as issuer
  - What is the welfare implications for public versus private issuance of e-money
  - What is the public policy arguments for CB intervention in terms of issuance?

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Research on money and e-money at the Bank of Canada

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Main goals of research agenda

- To deepen our understanding of digital alternatives to cash, and their likely evolution and pace of adoption
  - Method of payment surveys
  - Experimental studies and theoretical modeling work
- To analyze the implications of an increased reliance on these alternatives for the Bank;
  - Cryptocurrencies as a medium of exchange and financial asset
- And to establish a view on the potential role of public institutions as e-money issuers
  - Historical evidence
  - Theoretical models to study the welfare comparison between private and public issuance

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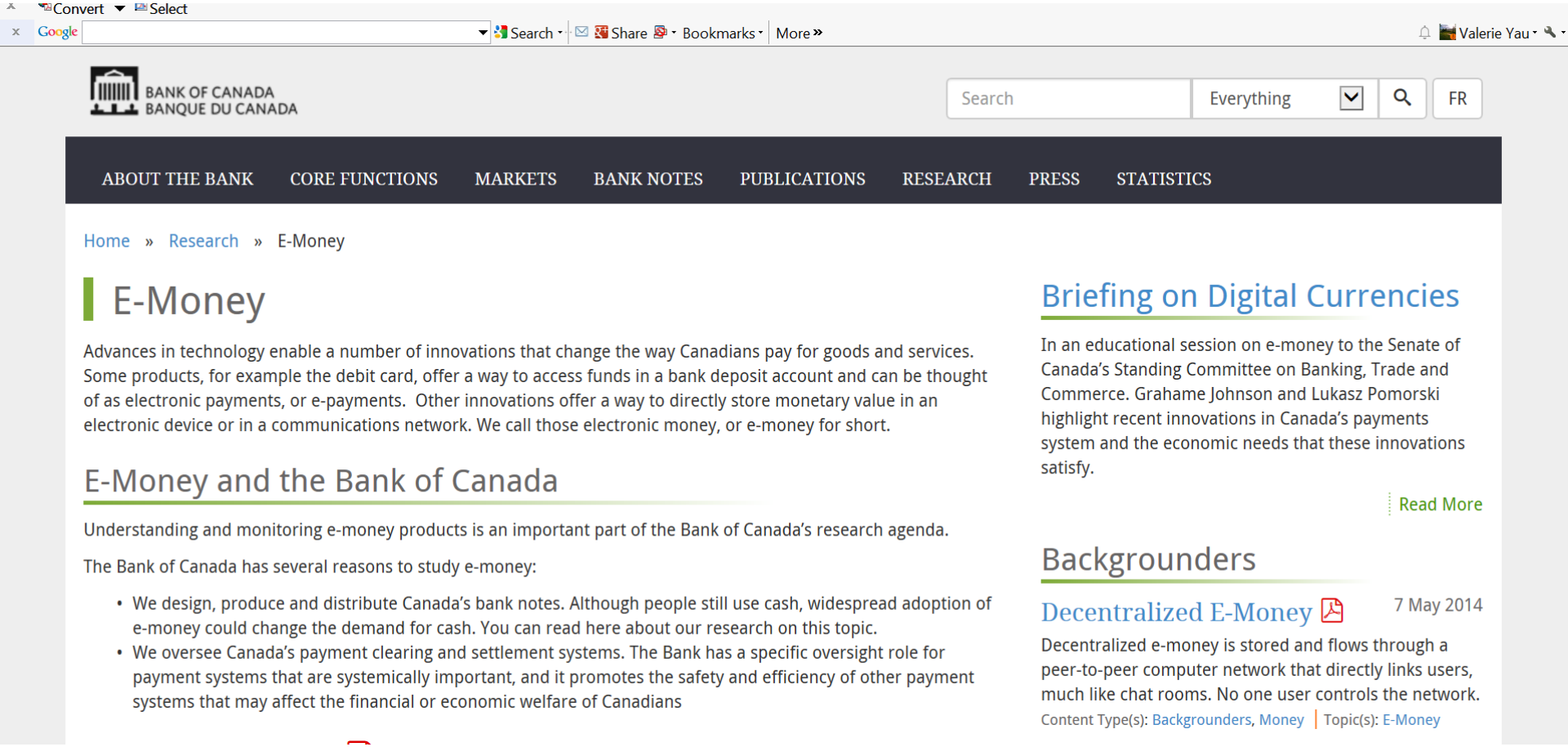
http://www.bankofcanada.ca/research/e-money/



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Thank you